

What is claimed is:

1. A method for manufacturing a packing made of a three-dimensional net-like structure which constitutes an internal structure of a device which performs material transfer, heat exchange or mixing between gases, liquids or gas and liquid, said internal structure being divided in a plurality of chambers or channels connected to one another and said three-dimensional net-like structure being made of a plurality of unit structures which are arranged continuously in vertical and horizontal directions of the three-dimensional net-like structure, each of the unit structures being formed by converging and dispersion of three line elements, said method comprising a step of forming a converging section of the unit structure where the three line elements converge by binding the three line elements together.

2. A method for manufacturing a packing made of a three-dimensional net-like structure which constitutes an internal structure of a device which performs material transfer, heat exchange or mixing between gases, liquids or gas and liquid, said internal structure being divided in a plurality of chambers or channels connected to one another and said three-dimensional net-like structure being made of a plurality of unit structures which are arranged continuously in vertical and horizontal directions of the three-dimensional net-like structure, each of the unit structures being formed by converging and dispersion of three line elements, said method comprising steps of:

(A) forming a unit structure with three line elements, said unit structure consisting of a plurality of basic units each of which is a combination of two

(B) disposing a plurality of said unit structures in such a manner that adjacent ones of the unit structures come into contact with each other so that the adjacent one of the unit structures are in a position to form the converging section of the three line elements at each apex of the common bottom surface of the two triangular pyramids constituting the basic unit, and forming the converging section of the three line elements by binding the three line elements at each point of contact of the adjacent ones of the unit structures.

4. A method for manufacturing a packing made of a three-dimensional net-like structure as defined in claim 2 wherein the converging section of the three line elements is formed by binding the three line elements by means of a clip.

6. A method for manufacturing a packing made of a three-dimensional net-like

structure which constitutes an internal structure of a device which performs material transfer, heat exchange or mixing between gases, liquids or gas and liquid, said internal structure being divided in a plurality of chambers or channels connected to one another and said three-dimensional net-like structure being made of a plurality of unit structures which are arranged continuously in vertical and horizontal directions of the three-dimensional net-like structure, each of the unit structures being formed by converging and dispersion of four line elements, said method comprising a step of forming a converging section of the unit structure where the four line elements converge by binding the four line elements together.

7. A method for manufacturing a packing made of a three-dimensional net-like structure which constitutes an internal structure of a device which performs material transfer, heat exchange or mixing between gases, liquids or gas and liquid, said internal structure being divided in a plurality of chambers or channels connected to one another and said three-dimensional net-like structure being made of a plurality of unit structures which are arranged continuously in vertical and horizontal directions of the three-dimensional net-like structure, each of the unit structures being formed by converging and dispersion of four line elements, said method comprising steps of:

(A) forming a unit structure with four line elements, said unit structure consisting of a plurality of basic units each of which is a combination of two quadruple pyramids having a common bottom surface and apexes disposed in opposite directions, said basic units being arranged continuously in vertical direction of the three-dimensional net-like structure with apexes of each of the basic units being in contact with apexes of adjacent basic units, and a converging section of the four line elements being formed by binding the four line elements at a point of contact of the apexes of the adjacent basic units, and

(B) disposing a plurality of said unit structures in such a manner that adjacent ones of the unit structures come into contact with each other so that the adjacent ones of the unit structures are in a position to form the converging section of the four line elements at each apex of the common bottom surface of the two quadruple pyramids constituting the basic unit, and forming the converging section of the four line elements by binding the four line elements at each point of contact of the adjacent ones of the unit structures.

8. A method for manufacturing a packing made of a three-dimensional net-like structure as defined in claim 7 wherein the converging section of the four line elements is formed by binding the four line elements by means of wire.

9. A method for manufacturing a packing made of a three-dimensional net-like structure as defined in claim 7 wherein the converging section of the four line elements is formed by binding the four line elements by means of a clip.

10. A method for manufacturing a packing made of a three-dimensional net-like structure as defined in claim 7 wherein the converging section of the four line elements is formed by adhering together of the four line elements by means of an adhesive.

11. A method for manufacturing a three-dimensional net-like structure including a mist eliminator and a multi-layer filtering film made of a plurality of unit structures which are arranged continuously in vertical and horizontal directions of the three-dimensional net-like structure, each of the unit structures being formed by converging and dispersion of three line elements, said method comprising a step of forming a converging section of the unit structure where the three line elements converge by binding the three line elements together.

12. A method for manufacturing a three-dimensional net-like structure including a mist eliminator and a multi-layer filtering film made of a plurality of unit structures which are arranged continuously in vertical and horizontal directions of the three-dimensional net-like structure, each of the unit structures being formed by converging and dispersion of three line elements, said method comprising steps of:

(A) forming a unit structure with three line elements, said unit structure consisting of a plurality of basic units each of which is a combination of two triangular pyramids having a common bottom surface and apexes disposed in opposite directions, said basic units being arranged continuously in vertical direction of the three-dimensional net-like structure with apexes of each of the basic units being in contact with apexes of adjacent basic units, and a converging section of the three line elements being formed by binding the three line elements at a point of contact of the apexes of the adjacent basic units, and

(B) disposing a plurality of said unit structures in such a manner that adjacent ones of the unit structures come into contact with each other so that the adjacent ones of the unit structures are in a position to form the converging section of the three line elements at each apex of the common bottom surface of the two triangular pyramids constituting the basic unit, and forming the converging section of the three line elements by binding the three line elements at each point of contact of the adjacent ones of the unit structures.

13. A method for manufacturing a three-dimensional net-like structure as defined in claim 12 wherein the converging section of the three line elements is formed by binding the three line elements by means of wire.

14. A method for manufacturing a three-dimensional net-like structure as

09847719 050201

defined in claim 12 wherein the converging section of the three line elements is formed by binding the four line elements by means of a clip.

15. A method for manufacturing a three-dimensional net-like structure as defined in claim 12 wherein the converging section of the three line elements is formed by adhering together of the three line elements by means of an adhesive.

16. A method for manufacturing a three-dimensional net-like structure including a mist eliminator and a multi-layer filtering film made of a plurality of unit structures which are arranged continuously in vertical and horizontal directions of the three-dimensional net-like structure, each of the unit structures being formed by converging and dispersion of four line elements, said method comprising a step of forming a converging section of the unit structure where the four line elements converge by binding the four line elements together.

17. A method for manufacturing a three-dimensional net-like structure including a mist eliminator and a multi-layer filtering film made of a plurality of unit structures which are arranged continuously in vertical and horizontal directions of the three-dimensional net-like structure, each of the unit structures being formed by converging and dispersion of four line elements, said method comprising steps of:

(A) forming a unit structure with four line elements, said unit structure consisting of a plurality of basic units each of which is a combination of two quadruple pyramids having a common bottom surface and apexes disposed in opposite directions, said basic units being arranged continuously in vertical direction of the three-dimensional net-like structure with apexes of each of the basic units being in contact with apexes of adjacent basic units, and a

09847719 "050201
T02050 6T4888

converging section of the four line elements being formed by binding the four line elements at a point of contact of the apexes of the adjacent basic units, and

(B) disposing a plurality of said unit structures in such a manner that adjacent ones of the unit structures come into contact with each other so that the adjacent ones of the unit structures are in a position to form the converging section of the four line elements at each apex of the common bottom surface of the two quadruple pyramids constituting the basic unit, and forming the converging section of the four line elements by binding the four line elements at each point of contact of the adjacent ones of the unit structures.

18. A method for manufacturing a three-dimensional net-like structure as defined in claim 17 wherein the converging section of the four line elements is formed by binding the four line elements by means of wire.

19. A method for manufacturing a three-dimensional net-like structure as defined in claim 17 wherein the converging section of the four line elements is formed by binding the four line elements by means of a clip.

20. A method for manufacturing a three-dimensional net-like structure as defined in claim 17 wherein the converging section of the four line elements is formed by adhering together of the four line elements by means of an adhesive.

21. A packing made of a three-dimensional net-like structure which constitutes an internal structure of a device which performs material transfer, heat exchange or mixing between gases, liquids or gas and liquid, said internal structure being divided in a plurality of chambers or channels connected to one another and said three-dimensional net-like structure being

09347719-050201

made of a plurality of unit structures which are arranged continuously in vertical and horizontal directions of the three-dimensional net-like structure, each of the unit structures being formed by converging and dispersion of three line elements characterized in that a converging section of the unit structure where the three line elements converge is formed by binding the three line elements together.

22. A packing made of a three-dimensional net-like structure which constitutes an internal structure of a device which performs material transfer, heat exchange or mixing between gases, liquids or gas and liquid, said internal structure being divided in a plurality of chambers or channels connected to one another and said three-dimensional net-like structure being made of a plurality of unit structures which are arranged continuously in vertical and horizontal directions of the three-dimensional net-like structure, each of the unit structures being formed by converging and dispersion of three line elements, said three-dimensional net-like structure being formed of a plurality of unit structures each of which consists of a plurality of basic units each of which is a combination of two triangular pyramids having a common bottom surface and apexes disposed in opposite directions, said basic units being arranged continuously in vertical direction of the three-dimensional net-like structure with apexes of each of the basic units being in contact with apexes of adjacent basic units, said plurality of unit structures being disposed in such a manner that adjacent ones of the unit structures come into contact with each other so that the adjacent one of the unit structures are in a position to form a converging section of the three line elements at each apex of the common bottom surface of the two triangular pyramids constituting the basic unit, a converging section of the three line elements formed at a point of contact of the apexes of the adjacent basic units and the converging section formed at a point of contact of adjacent unit structures being respectively

05847719.050204

formed by binding the three line elements.

23. A packing made of a three-dimensional net-like structure which constitutes an internal structure of a device which performs material transfer, heat exchange or mixing between gases, liquids or gas and liquid, said internal structure being divided in a plurality of chambers or channels connected to one another and said three-dimensional net-like structure being made of a plurality of unit structures which are arranged continuously in vertical and horizontal directions of the three-dimensional net-like structure, each of the unit structures being formed by converging and dispersion of four line elements characterized in that a converging section of the unit structure where the four line elements converge is formed by binding the four line elements together.

24. A packing made of a three-dimensional net-like structure which constitutes an internal structure of a device which performs material transfer, heat exchange or mixing between gases, liquids or gas and liquid, said internal structure being divided in a plurality of chambers or channels connected to one another and said three-dimensional net-like structure being made of a plurality of unit structures which are arranged continuously in vertical and horizontal directions of the three-dimensional net-like structure, each of the unit structures being formed by converging and dispersion of four line elements, said three-dimensional net-like structure being formed of a plurality of unit structures each of which consists of a plurality of basic units each of which is a combination of two quadruple pyramids having a common bottom surface and apexes disposed in opposite directions, said basic units being arranged continuously in vertical direction of the three-dimensional net-like structure with apexes of each of the basic units being in contact with apexes of adjacent basic units, said plurality of unit structures being disposed

in such a manner that adjacent ones of the unit structures come into contact with each other so that the adjacent one of the unit structures are in a position to form a converging section of the four line elements at each apex of the common bottom surface of the two quadruple pyramids constituting the basic unit, a converging section of the four line elements formed at a point of contact of the apexes of the adjacent basic units and the converging section formed at a point of contact of adjacent unit structures being respectively formed by binding the four line elements.

25. A three-dimensional net-like structure including a mist eliminator and a multi-layer filtering film made of a plurality of unit structures which are arranged continuously in vertical and horizontal directions of the three-dimensional net-like structure, each of the unit structures being formed by converging and dispersion of three line elements characterized in that a converging section of the unit structure where the three line elements converge is formed by binding the three line elements together.

26. A three-dimensional net-like structure as defined in claim 25 wherein said three-dimensional net-like structure is formed of a plurality of unit structures each of which consists of a plurality of basic units each of which is a combination of two triangular pyramids having a common bottom surface and apexes disposed in opposite directions, said basic units being arranged continuously in vertical direction of the three-dimensional net-like structure with apexes of each of the basic units being in contact with apexes of adjacent basic units, said plurality of unit structures being disposed in such a manner that adjacent ones of the unit structures come into contact with each other so that the adjacent one of the unit structures are in a position to form a converging section of the three line elements at each apex of the common bottom surface of the two triangular pyramids constituting the basic unit, a

09847719.050201

converging section of the three line elements formed at a point of contact of the apexes of the adjacent basic units and the converging section formed at a point of contact of adjacent unit structures being respectively formed by binding the three line elements.

27. A three-dimensional net-like structure including a mist eliminator and a multi-layer filtering film made of a plurality of unit structures which are arranged continuously in vertical and horizontal directions of the three-dimensional net-like structure, each of the unit structures being formed by converging and dispersion of four line elements characterized in that a converging section of the unit structure where the four line elements converge is formed by binding the four line elements together.

28. A three-dimensional net-like structure as defined in claim 27 wherein said three-dimensional net-like structure being formed of a plurality of unit structures each of which consists of a plurality of basic units each of which is a combination of two quadruple pyramids having a common bottom surface and apexes disposed in opposite directions, said basic units being arranged continuously in vertical direction of the three-dimensional net-like structure with apexes of each of the basic units being in contact with apexes of adjacent basic units, said plurality of unit structures being disposed in such a manner that adjacent ones of the unit structures come into contact with each other so that the adjacent one of the unit structures are in a position to form a converging section of the four line elements at each apex of the common bottom surface of the two quadruple pyramids constituting the basic unit, a converging section of the four line elements formed at a point of contact of the apexes of the adjacent basic units and the converging section formed at a point of contact of adjacent unit structures being respectively formed by binding the four line elements.